

IN THE CLAIMS

Please amend claims 1, 9, 13 and 19, and add newly written claims 20 and 21 as follows.

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

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1. (*Amended*) An apparatus for producing simultaneously a plurality of spatially separated images from an object field comprising:

an optical system arranged to produce an image associated with a first focus condition;

a diffraction grating arranged to produce, in concert with the optical system, images associated with each diffraction order and

means for detecting the images,

wherein the optical system, diffraction grating and detecting means are located on an optical axis and the diffraction grating is located in a suitable grating plane and the diffraction grating is distorted according to a quadratic function so as to cause the images to be formed under various focus conditions and said images spatially separated in a direction having a non-zero component perpendicular to the optical axis.

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14/9. (*Amended*) An apparatus for producing simultaneously a plurality of spatially separated images from an object field comprising:

an optical system arranged to produce an image associated with a first focus condition;

a diffraction grating arranged to produce, in concert with the optical system, images associated with each diffraction order and

means for detecting the images,

wherein the optical system, diffraction grating and detecting means are located on an optical axis and the diffraction grating is located in a suitable grating plane and is distorted substantially according to a quadratic function so as to cause the images to be formed under various focus conditions whereby the diffraction grating comprises two gratings-sensitive to different polarisations and arranged such that the diffraction orders produced by said gratings are spatially separated.

13. (Amended) An apparatus for producing simultaneously a plurality of spatially separated images from an object field comprising:

an optical system arranged to produce an image associated with a first focus condition;

a diffraction grating arranged to produce, in concert with the optical system, images associated with each diffraction order and

means for detecting the images,

wherein the optical system, diffraction grating and detecting means are located on an optical axis and the diffraction grating is located in a suitable grating plane and is distorted substantially according to a quadratic function so as to cause the images to be

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C2

B4

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C2
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C2
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formed under various focus conditions and adapted for forming images on a plurality of image planes, from a single object plane.

19. (Amended) An apparatus for producing simultaneously a plurality of spatially separated images from an object field comprising:

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an optical system arranged to produce an image associated with a first focus condition;

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a diffraction grating arranged to produce, in concert with the optical system, images associated with each diffraction order and

means for detecting the images,

wherein the optical system, diffraction grating and detecting means are located on an optical axis and the diffraction grating is located in a suitable grating plane and is distorted substantially according to a quadratic function so as to cause the images to be formed under various focus conditions and further including a dispersive system for introducing an offset to an input beam of radiation, said offset being perpendicular to the optical axis and proportional to the wavelength of the input radiation, whilst leaving the beams at each wavelength following parallel paths.

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--20. (New) A wavefront analyser including an apparatus for producing simultaneously a plurality of spatially separated images from an object field according to claim 1.

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cont
B13

21. (New) A passage ranging device including an apparatus for producing simultaneously a plurality of spatially separated images from an object field according to claim 1.--
